# *EJECTION TOWER "VERTICAL ACCELERATOR"*

The Ejection Tower Facility at the Naval Air Warfare Center Aircraft Division, Patuxent River, Maryland, is a "one of a kind" facility in the United States. The purpose of the ejection tower is to test and evaluate new ejection seat technology. It has the capability to support medical monitoring of live subjects, high-speed and real-time photography, and data acquisition. The facility also has office space, a preparation area, and work spaces for fabricating unique instrumentation devices and metal fixtures or supports.

# *EJECTION TOWER*

The Ejection Tower was recently modernized and upgraded when it was moved from the Naval Air Development Center in Pennsylvania to NAWCAD Patuxent River. The Ejection Tower was operationally certified in April 1997. It has a complete on-site subject preparation and monitoring area which includes close-up video of the subject and state-of-the-art biophysiologic monitoring capabilities for real-time data analysis and storage. Experienced biomedical support personnel assist in the selection and preparation of subjects, and can provide complete advanced cardiac and trauma life support on-site.

The mission is to test and evaluate new ejection seat technology that is being developed for future defense forces. The captive and repeatable capability of the accelerator provides for cost-effective test and evaluation of potential new products, thus ensuring that the product meets or exceeds design performance specifications. In addition, this facility provides the means to continue biodynamic research, exploring human tolerance in a high-G environment.

The Ejection Tower is unique because it is the only such facility in the United States capable of live (human) subject testing. The U.S. Navy and U.S. Air Force use it for occupant and equipment testing. NASA used

the Ejection Tower to conduct live astronaut testing for their GEMINI program; as a result, human center of gravity excursions for rocket-assisted ejection seats were established.

The Ejection Tower is useful in a variety of human factors and equipment testing, including human tolerance to ejection seat accelerations and onset rates, component structural integrity, restraint system function, physiologic compatibility of cushions, lumbar pads, ballistic inertia reels, seat platform and spinal alignment, and rescue and survival kit evaluation, both structural and physiological.

*For more information about the Vertical Accelerator Facility at the Naval Air Warfare Center Aircraft Division, Patuxent River, MD, contact the Crew Systems Department at 301-342-8439.*